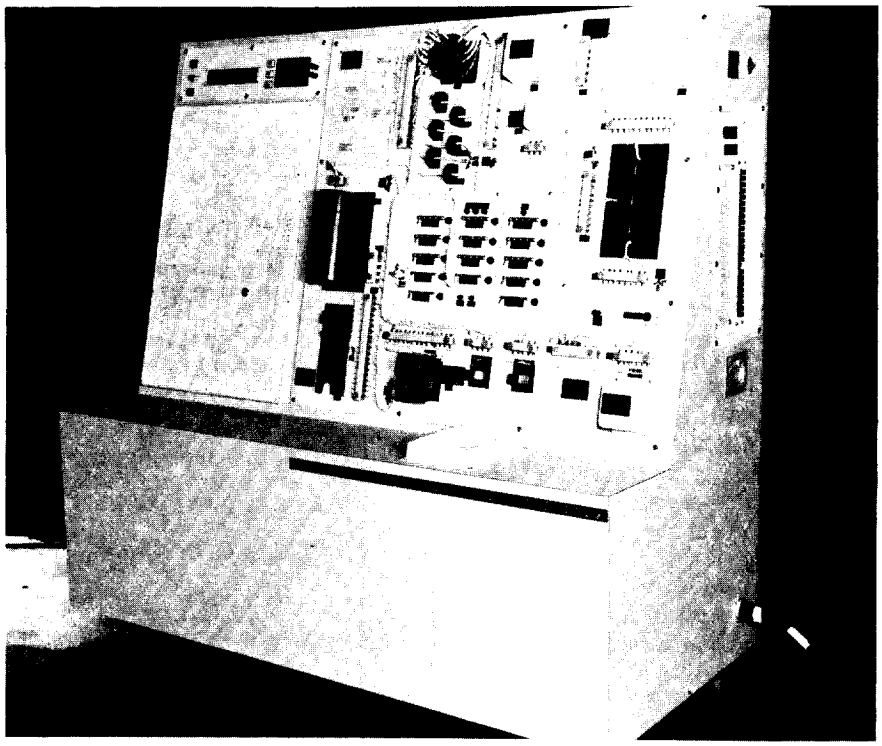

AIRCRAFT ELECTRICAL POWER SUPPLY/DISTRIBUTION PANEL T/A, DEVICE 6E27

TRAINING CATEGORY:

BASIC SCIENCE (Electricity)

ORIGINATING AGENCY:

DCNO/AIR

SECURITY CLASSIFICATION:

Device 6E27 is unclassified.

PURPOSE:

The purpose of the training device is to simulate the normal operation of the A-7 aircraft electrical power supply and distribution system. The trainer will enable the student to exact performance data with the use of a multimeter and a frequency meter.

INTENDED USE:

Training will take place at Aviation Electrician's Mate School. Trainees will perform operational checks of representative aircraft power supply and distribution systems. Trainees will have demonstrated mastery of sub-tasks defined by learning objectives prior to use of the trainer.

FUNCTIONAL DESCRIPTION:

The Electrical Power Supply System provides the necessary equipment for generation, regulation, control, protection conversion, and distribution of electrical power required for airplane operation. Device 6E27 will simulate the normal operation of the A-7 aircraft electrical supply and distribution system. The system shall contain the following major components:

1. Panel Frame Assy - shall contain an electrical schematic of the complete trainer. Two (2) hinged access doors shall be provided behind the trainer to provide protection for and maintenance of electrical and mechanical equipment.

2. Training Panel - the wiring of the A-7 aircraft electrical power supply and distribution system shall be wired on the outer surface of the training panel. Panel shall reflect four (4) subsystems used in A-7 aircraft electrical power and distribution system. These subsystems are:

A. Normal A.C. power subsystem
B. Emergency A.C. power subsystem
C. Emergency D.C. power subsystem
D. External A.C. power subsystem

The trainer shall have a built-in frequency meter mounted on the training panel. Frequency meter will be used to measure the frequency of the 400 Hz. power supplies. The frequency meter shall have a minimum range of 360 to 444 Hz. The frequency meter system will be used by the trainee to determine if power generating devices are producing the correct frequency.

3. Fault Panel - the fault panel shall be used to introduce malfunctions into the simulated system. The fault panel shall enable the instructor to insert one of 21 different malfunctions into the system. An elapsed time indicator and a replace/repair counter. The items shall indicate if a trainee is attempting to analyze the system or is randomly selecting replace/repair actions and the time expended to correct a malfunction.

4. Internal Power Supplies - the "Main A.C. Generator" and the "Emergency Generator" shall be mounted within the trainer. These power supplies shall be capable of supplying the trainer with power. The 115/208 Volt A.C., 3-Phase, 400 Hz. power supply shall be powered from 120 Volt A.C., 60 Hz. commercial power.

5. Electrical Schematic Panel - located to the left of the training panel shall depict the schematic of the A-7 aircraft electrical power supply and distribution system.

6. Student Electrical Schematic - three (3) student schematics shall be provided and stored at the rear of the trainer.

7. Power Cable - trainer shall be equipped with a 8.5 meter 3-wire rubber covered extension cable. A male connector shall be on the live end, and a locking type female connector on the trainer end. A matching male receptacle shall be on the trainer at the rear.

8. Dust Cover - made of vinyl coated nylon. The trainer will enable the student to perform checks and tests of electrical control devices, and circuit protective devices using a multimeter. Also measure frequency from power generating device using a frequency meter.

PHYSICAL INFORMATION:

The dimensions shall not exceed 1.8 meters high, 1.8 meters wide, or 0.9 meters deep.

Exterior surface of frame shall be light gray. Background of the panel shall be light green.

ENVIRONMENTAL CHARACTERISTICS:

The training equipment shall withstand the following climatic conditions:

The trainer shall be designed to operate in an environment with temperatures from + 15° to 45° C and with relative humidity up to 95% condensation.

Trainer noise level shall not exceed 40 decibles above ambient at any point 2 meters in front of trainer face.

INSTALLATION AREA:

Classroom

POWER REQUIREMENTS:

120 Volt A.C., 60 Hz. Commercial Power

EQUIPMENT REQUIRED (NOT SUPPLIED):

Multimeter

PUBLICATIONS FURNISHED:

Operator/Maintenance Manuals

PERSONNEL:

Instructor: One (1)

Student: One (1)

CONTRACT IDENTIFICATION:

Manufactured by Burtek Inc., Tulsa, OK under NAVTRASYSCEN Contract No. N61339-78-C-0100.

LOCAL STOCK NUMBER:

6910-LL-C00-4745